UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,044	08/03/2008	Karl Reisinger	06-310	5321

34704 7590 08/23/2010

BACHMAN & LAPOINTE, P.C.
900 CHAPEL STREET
SUITE 1201
NEW HAVEN, CT 06510

EXAMINER	
TAMAI, KARL I	
ART UNIT	PAPER NUMBER
2834	

MAIL DATE	DELIVERY MODE
08/23/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/578,044	REISINGER, KARL	
	Examiner	Art Unit	
	KARL I.E. TAMAI	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12-22* is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 July 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The substitute specification filed 7/27/2006 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the the second part (pole teeth) being the stator and the first part is an inner rotor (permanent magnets) must be shown or the feature canceled from the claim 20. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not enable or contain a full, clear, concise, and exact written description of the second part (pole teeth) being the stator and the first part is an inner rotor (permanent magnets).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 12, 15, 16, 18, 19, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bai (US 6771031), Asakawa (JP 53096409), and Rawlings (US 2278489). Bai teaches an electrically actuated clutch having an actuator with an electric actuating motor 13, a transmission mechanism 22 and an actuating element 14, wherein the actuating element is brought into a specific position (engaged) by the actuating motor and to be held in said position, and the actuating motor being a DC motor (col. 1, line 61). Bai does not teach the motor having a first part with a number of permanent magnets distributed over the circumference and a second part which has pole teeth having windings, which are fed with commutated current, where the first part has alternately first zones having a low magnetic field strength and second zones having a high magnetic field strength over its circumference, the circumferential angle of the second zones being equal to the circumferential angle of the pole teeth of the second part, the number of pole teeth distributed evenly over the circumference being selected such that all of the second zones are always passed at the same time by a pole tooth, and in the state in which there is no current flowing, an increased pulsating torque is exerted between the first part and the second part.

Asakawa teaches a dynamoelectric device having a first part with a number of permanent magnets 5 distributed over the circumference and a second part 1 which has pole teeth having windings, where the first part has alternately first zones having a low magnetic field strength (between the poles 4) and second zones having a high magnetic field strength (at the poles 4) over its circumference, where the number of pole teeth distributed evenly over the circumference being selected such that all of the second

zones are always passed at the same time by a pole tooth (see fig. 2), and in the state in which there is no current flowing, an increased pulsating torque is exerted between the first part and the second part (inherent from the equal number of stator and armature poles) to provide increased torque (see abstract). Asakawa does not teach the circumferential angle of the second zones being equal to the circumferential angle of the pole teeth of the second part. Rawlings teaches that effective flux flow in a permanent magnet dynamo by having equal (shown in fig 10) circumferential poles on stator and rotor (pg 1, col. 2, lines 10-25). It would have been obvious to a person of ordinary skill in the electric motor art at the time of the invention to construct the actuated device of Bai with the DC motor having the stator and rotor poles of Asakawa to provide increased torque, and with the circumferential angle of the second zones being equal to the circumferential angle of the pole teeth of the second part, to provide optimized flux flow between the stator and rotor poles as taught by Rawlings.

In regards to claim 15, Bai and Asakawa do not teach the enlargened air gap of claim 15. Rawlings teaches that at least some of the first zones having a low magnetic field strength C are created by the air gap being enlarged in the radial direction in at least individual permanent magnets (a), whose circumferential angle is a multiple of the circumferential angle of the pole teeth (fig. 4) to provide minimized distortion of the flux path (pg. 3, col. 1, lines 1-30). It would have been obvious to a person of ordinary skill in the electric motor art at the time of the invention to construct the actuated device of Bai, Asakawa, and Rawlings with at least some of the first zones having a low magnetic field strength created by the air gap being enlarged in the radial direction in at least

individual permanent magnets and whose circumferential angle is a multiple of the circumferential angle of the pole teeth to provide minimized distortion of the flux path, as taught by Rawlings.

In regards to claim 16, Bai and Asakawa do not teach the circumferential angle of at least some of the first zones having a low magnetic field strength is approximately equal to the circumferential angle of the interspaces in the circumferential direction between the pole teeth. Rawlings teaches the circumferential angle of at least some of the first zones having a low magnetic field strength is approximately equal to the circumferential angle of the interspaces in the circumferential direction between the pole teeth (fig. 10) to provide minimized distortion of the flux path (pg. 3, col. 1, lines 1-30). It would have been obvious to a person of ordinary skill in the electric motor art at the time of the invention to construct the actuated device of Bai, Asakawa, and Rawlings with the circumferential angle of at least some of the first zones having a low magnetic field strength is approximately equal to the circumferential angle of the interspaces in the circumferential direction between the pole teeth to provide minimized distortion of the flux path, as taught by Rawlings.

In regards to claim 18, Rawlings teaches the thickness of the tips of the pole teeth in the radial direction is smaller than the distance between the tips of two adjacent pole teeth (see figs. 1 and 10). It would have been obvious to a person of ordinary skill in the electric motor art at the time of the invention to construct the actuated device of Bai, Asakawa, and Rawlings with the thickness of the tips of the pole teeth in the radial

direction is smaller than the distance between the tips of two adjacent pole teeth to provide minimized distortion of the flux path, as taught by Rawlings.

In regards to claim 19, Bai does not teach the first part is the stator and the second part is an inner rotor. Akasawa and Rawlings teach the first part is the stator and the second part is an inner rotor. It would have been obvious to a person of ordinary skill in the electric motor art at the time of the invention to construct the actuated device of Bai, Asakawa, and Rawlings with the first part is the stator and the second part is an inner rotor to provide a high torque motor, as taught by Akasawa.

In regards to claims 21 and 22, Bai teaches a friction clutch 12, toothed gear 17, ramp rings 31, 32 to engage the clutch.

6. Claims 13, 21/31, and 22/13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bai (US 6771031), Asakawa (JP 53096409), and Rawlings (US 2278489), in further view of Seo (JP 61147757). Bai, Asakawa, and Rawlings teach every aspect of the invention except the first zones having a low magnetic field strength and the second zones having a high magnetic field strength are produced by the permanent magnets being magnetized variably over the circumference. Seo teaches a DC motor having the poles first and second zones (fig 3) of variably magnetized flux magnets around the circumference to provide low cogging torque. It would have been obvious to a person of ordinary skill in the electric motor art at the time of the invention to construct the actuated device of Bai, Asakawa, and Rawlings with the first zones having a low magnetic field strength and the second zones having a high magnetic field

strength are produced by the permanent magnets being magnetized variably over the circumference to reduce cogging torque as taught by Seo.

7. Claim 14, 21/14, and 22/14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bai (US 6771031), Asakawa (JP 53096409), and Rawlings (US 2278489), in further view of Matsushita (US 5157294). Bai, Asakawa, and Rawlings do not teach the first zones having a low magnetic field strength are formed by interspaces between two adjacent permanent magnets. Matsushita teaches zones of low magnetic permeability between the magnets (fig. 13) being the equivalent of a ring magnet in DC commutated motors. It would have been obvious to a person of ordinary skill in the electric motor art at the time of the invention to construct the actuated device of Bai, Asakawa, and Rawlings with the first zones having a low magnetic field strength are formed by interspaces between two adjacent permanent magnets to create a motor with reduced use of expensive magnetic material, as taught by Matsushita, and because selection between known equivalents is merely a choice of common sense design choice to a person of ordinary skill in the art.

8. Claim 17, 21/17, and 22/17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bai (US 6771031), Asakawa (JP 53096409), and Rawlings (US 2278489), in further view of Takagi (JP 63-157651). Bai, Asakawa, and Rawlings do not teach the circumferential angle of the low magnetic field zone is between 0.2 and 0.3 times the circumferential angle of the pole. Asakawa teaches the low magnetic

zones being the same circumferential angle as the gap between the pole teeth. Takagi teaches the gap between the pole teeth 17 being small to reduce cogging torque. It would have been obvious to a person of ordinary skill in the electric motor art at the time of the invention to construct the actuated device of Bai, Asakawa, and Rawlings with the circumferential angle of the low magnetic field zone is between 0.2 and 0.3 times the circumferential angle of the pole to provide reduced cogging torque as taught by Takagi.

9. Claim 20, 21/20, and 22/20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bai (US 6771031), Asakawa (JP 53096409), and Rawlings (US 2278489), in further view of Hirashima (JP 03-098449). Bai, Asakawa, and Rawlings do not teach the second part (pole teeth) being the stator and the first part is an inner rotor (permanent magnets). Hirashima teaches the second part (pole teeth) being the stator and the first part is an inner rotor (permanent magnets) to provide a motor of low cogging torque and set stopping positions. It would have been obvious to a person of ordinary skill in the electric motor art at the time of the invention to construct the actuated device of Bai, Asakawa, and Rawlings with the second part (pole teeth) being the stator and the first part is an inner rotor (permanent magnets) to provide reduced cogging torque as taught by Hirashima, and because it has been held that to rearrange parts of an invention only involves routine skill in the art. *In re Japikse*, 86 USPQ 70.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mrs. Quyen Leung, can be reached at (571) 272 - 8188. The facsimile number for the Group is (571) 273 - 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Karl I Tamai/
PRIMARY PATENT EXAMINER
August 19, 2010